

ABSTRACT OF THE DISCLOSURE

A phase-change memory device includes memory cells, a memory cell array, a first electrode layer, a word line, and a bit line. The memory cell includes
5 a phase-change layer formed on a semiconductor substrate. The memory cell array has the memory cells arranged in a matrix. The phase change layer includes first regions which contact the semiconductor substrate in units of memory cells and a second region which
10 connects the first regions arranged in a same column. The first electrode layer is formed on the second region. A contact area of each first region and the semiconductor substrate is smaller than a contact area of the second region and the first electrode
15 layer. The bit line is electrically connected to the first electrode layer. The bit line is connects in common the phase-change layers of the memory cells arranged in the same column.